

25th Annual
Student
Research
Forum

April 8 & 15, 2016

Centenary

25th Annual **Student Research Forum**

April 8 & 15, 2016

Posters

Mickle Hall
(2nd floor)
2:00 – 5:30 P.M.
April 8, 2016

Social Sciences

Carlile Auditorium
(Mickle Hall first floor)
2:00 – 2:50 P.M.
April 15, 2016

Natural Sciences

Carlile Auditorium
(Mickle Hall first floor)
2:50 – 3:20 P.M.
April 15, 2016

Humanities

Carlile Auditorium
(Mickle Hall first floor)
3:20 – 4:30 P.M.
April 15, 2016

Student Research Forum

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Editor

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25th Annual Student Research Forum

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25th Annual Student Research Forum

POSTER Presentations/Judging

* Presentation and judging will take place on Friday, April 8th between 2:00 P.M.-5:30 P.M. on the second floor of Mickle Hall. In preparation of the judging, presenters should have their posters in place and ready at their assigned locations no later than **Thursday** evening.

2:00 P.M Provost Jenifer Ward Introduction/Welcome

2:15 P.M. Melissa TraverBiology

2:30 P.M. Elaina Turner and Hannah Hastie.....Biology

2:45 P.M. Jessica CameronChemistry

3:00 P.M. Kossi Senagbe.....Chemistry

3:15 P.M. Namra TanveerBiology

Break: 3:30 P.M. – 3:45 P.M.

3:45 P.M. Peter SommersTheatre and Dance

4:00 P.M. Taylor AckermanTheatre and Dance

4:15 P.M. Julia L Eckelkamp.....Theatre and Dance

4:30 P.M. Bailey WhiteTheatre and Dance

4:45 P.M. Abigail DillardTheatre and Dance

5:00 P.M. John La Costa.....Theatre and Dance

ORAL Presentations/Judging

* Presentation and judging will take place on Friday, April 15th between 2:00 P.M.-5:00 P.M. in Carlile Auditorium which is located in Mickle 114.

Social Sciences

in Carlile Auditorium

2:00 P.M Provost Jenifer Ward Introduction/Welcome

2:10 P.M. Wesle Coffman Economics

2:20 P.M. Sarah Irons Sociology

2:40 P.M. Gabrielle Glorioso Psychology

* Social Sciences Oral Presentations end about 2:30 P.M.*

Break: 2:40 P.M. – 2:50 P.M.

Natural Sciences

in Carlile Auditorium

2:50 P.M. Manon DoucetBiology

3:00 P.M. Dolores RossChemistry

* Natural Sciences Oral Presentations end about 3:10 P.M.*

Break: 3:10 P.M. – 3:20 P.M

Humanities

in Carlile Auditorium

3:20 P.M. Jamie Wright Religious Studies

3:30 P.M. Reily Cook English

3:40 P.M. Tyler Sanders English

3:50 P.M. Grace Rambo English

4:00 P.M. Abigail Dillard Theatre and Dance

4:10 P.M. Christian Roberson and Sarah Leal Theatre and Dance

4:20 P.M. David Westbrook Music

Humanities Oral Presentations end about 4:30 P.M.

POSTER PRESENTATIONS

Analysis of Concurrently Expressed CCT-domain Proteins During the Floral Transition in *Sorghum bicolor*

Melissa Traver

Research Advisors: Drs. Daryl T. Morishige², John E. Mullet²,
Rebecca L. Murphy¹

¹Department of Biology
Centenary College of Louisiana

²Department of Biochemistry and Biophysics,
Texas A&M University, College Station, TX

The transition to flowering requires the precise coordination between external stimuli and internal signals. Once this switch has been triggered, the meristem architecture must be rearranged to produce reproductive organs. This process, from the point at which initial floral signals are received until flowering commences, is accompanied by changes in gene expression. In *Sorghum bicolor*, much of this change is facilitated by members of a protein family that have CCT-domains, particularly PRR37, Ghb7, and CONSTANS. These types of proteins have been shown to assemble into heterotrimeric complexes on distal enhancer elements in *Arabidopsis*, and influence chromatin structure to regulate gene expression. Additionally, the CCT-domain protein family contains many members, allowing for an immense amount of variation in the composition of these complexes. To gain understanding about how these proteins may be acting in crop plants, the comparative expression studies have been performed in *Sorghum bicolor* to allow insight into which CCT-proteins are co-expressed, and therefore available for complex formation at certain points in the floral transition.

The Effects of Tapping on Aquarium Glass on the Blood Glucose Levels of *Moenkhausia sanctaefilomenae*

Elaina Turner and Hannah Hastie

Research Advisor: Dr. Cristina Caldari

Department of Biology
Centenary College of Louisiana

Public aquariums display signs that urge spectators to refrain

from tapping on the glass to prevent undue stress on the fish. The fleeing behavior is what suggests stress, not physiological evidence. The acute stress response involves a quick release of hormones followed by a secondary response that leads to an increase in blood glucose, which provides the burst of energy needed to fight or flee. If, however, a fish is exposed to long-term stress, a tertiary response will increase susceptibility to disease and death. The objective of this experiment is to examine the effects of tapping aquarium glass on the acute stress response of *Moenkhausia sanctaefilomenae*, a common aquarium species, as measured by blood glucose levels. Twenty-nine fish were divided into two tanks; the experimental group was exposed to aquarium glass tapping and the control group was not. Fish in both groups were netted from their tanks, placed in an ice bath, and decapitated with a scalpel. A human glucometer was used to measure blood glucose levels in the fish. There was a significant time-dependent increase in blood glucose levels in the experimental group ($p < 0.001$), which was not observed in the control group ($p = 0.16$). These results suggest that tapping on aquarium glass is a stressor for fish. If tapping does not desist, it could lead to exhaustion and early death.

The Effect of Deprenyl on the Lifespan of *C. elegans*

Jessica Cameron

Research Advisor: Dr. Kathrine Weeks

Department of Chemistry
Centenary College of Louisiana

In many aging-related diseases such as Parkinson's, Alzheimer's, depression, and dementia, the balance of dopamine is disrupted. Effective treatment often involves inhibiting monoamine oxidase-B (MAO-B), a protein that regulates dopamine concentration. Deprenyl (Selegiline) is an MAO-B inhibitor that could also be used to highlight important mechanisms of aging. Deprenyl treatment increases lifespan of rats¹ and mice², but the mechanism is unknown. This study explores the mechanisms by which deprenyl extends the lifespan of *C. elegans*, a model organism with highly conserved aging pathways. Wild-type animals were exposed to 1.0×10^{-5} mM, 1.0×10^{-3} mM, and 1.0×10^{-1} mM deprenyl. Median and maximum lifespan were scored along with deprenyl's ability to prevent age-induced paralysis and delay death due to chronic heat stress. Our results

demonstrate that 1.0×10^{-1} mM deprenyl significantly increases median and maximum lifespan, and that this increase in lifespan is not due to decreased caloric intake. Additionally, deprenyl reduces the onset of aging-induced paralysis and delays heat-induced death. Further research into this mechanism will give insight into controlling the balance of signaling networks to delay senescence and suggest molecular targets for improved clinical treatments to increase human health span

Probing Molecular Interactions Between PRX and Tight Junction Membrane Proteins in Blood Brain Barrier

Kossi Senagbe

Research Advisors: Dr. Michael Wang and Mrs. Soo Lee

Department of Neurology
University of Michigan, Ann Arbor, MI

My research is oriented on probing molecular interaction between PRX (a known PDZ domain protein) and tight junction membrane proteins in the blood brain barrier. The project is based on a permeability assay data showing that PRX expression broadly decreases the permeability of endothelial cells making tight junction tighter, I hypothesize that PRX interacts with C-terminal sequences of tight junction membrane proteins in the blood brain barrier. I used molecular cloning as my method to subclone PRX into a pLenti expression vector and the C-terminal sequences of tight junction membrane proteins into GFP expression vector. Furthermore, I co-transfected both cloned plasmids into kidney 293 cells to make proteins and Co-IP the proteins to see if they are binding (have molecular interaction).

My experimental results show that the cloning and Co-transfection of the plasmids to make the protein was successful but I was unable to demonstrate the interaction between the PRX and C-termini of tight junction membrane proteins through the Co-Immunoprecipitation experiment.

Regulation of Smooth Muscle Cells and the Arterial Response to Injury by MnTnBuOE-2-PyP5+

Namra Tanveer

Research Advisors: Drs. Ines Batinic Habele, Daret St Clair,
Manikandan Panchatcharam Sumitra Miriyala

Department of Cell Biology and Anatomy
LSUHSC Shreveport, Louisiana

Clinical studies have suggested that in comparison to non-diabetics, diabetic patients display higher rates of neointimal hyperplasia (restenosis) after percutaneous vascular interventions. In the Diabetes Control and Complications Trial (DCCT), 1229 individuals with Type 1 diabetes had increased carotid intima-media thickness as compared with age and sex matched controls, and similar findings have been observed in other clinical studies. In response to vascular injury, smooth muscle cells (SMCs) residing in the vessel are stimulated to proliferate, migrate, and participate in the development of neointimal hyperplasia. Previous studies on animals and humans demonstrated that high glucose enhances the PI3K/ERK activity in vascular smooth muscle cells, mediating vascular malfunction in part through generation of reactive oxygen species. In earlier studies, it was shown that MnTnBuOE-2-PyP5+ distributed 3 fold more in mitochondria than in cytosol and was shown in a number of studies to mimic mitochondrial MnSOD. We hypothesize that MnTnBuOE-2-PyP5+ may serve as a key biochemical switch that is influenced by extracellular glucose levels via PI3K and ERK/MAPK signaling pathways and thereby regulates chemotaxis of vascular SMCs. Our results reveal new insight into signaling systems mediated by MnTnBuOE-2-PyP5+ and may provide novel targets for treatment and prevention of diabetic vascular disorders

Hearts Like Fists Set & Poster Design

John La Costa

Research Advisor: Mr. Don Hooper

Department of Theatre and Dance
Centenary College of Louisiana

For my showcase I will be presenting original set poster designs from the play "Hearts Like Fists" as displayed at KCACTF in February. My presentation will outline my creative process and how my work evolved throughout the production through collaboration with my director and other designers.

Property design for Hearts Like Fists!

Peter Sommers

Research Advisor: Mr. Don Hooper

Department of Theatre and Dance
Centenary College of Louisiana

Sleek, sexy pieces for heroic performances.

Not About Nightingales

Taylor Ackerman

Research Advisor: Mr. Don Hooper

Department of Theatre and Dance
Centenary College of Louisiana

My presentation will be focused on my work as the makeup designer for MLP's production of *Not About Nightingales* by Tennessee Williams. The biggest part of the project was the scars for Canary Jim's character. The scars were handmade out of gelatin and applied using liquid latex. I found several reference photos and went through multiple color treatments in the pursuit of realism. I researched, designed, sculpted and made the scars myself. I also was able to successfully make women appear as men on stage by creating custom face charts using image editing software and sketching the designs on them. I was also tasked with showing the physical distress of men who were sent to solitary confinement.

“Not About Nightingales” Costume Design and Construction

Julia L Eckelkamp

Research Advisor: Mr. Don Hooper

Department of Theatre and Dance
Centenary College of Louisiana

“Not About Nightingales” is a play by Tennessee Williams in 1938. It is based loosely on events that occurred in a Pennsylvania prison and follows a group of prisoners who go on a hunger strike and eventually suffocate in a steam room. In order to portray this painful story, the costumes were mainly dark grays and blues, with the only hint of color coming from Goldie, an apparition of one of the inmates.

***Not About Nightingales* Stage Manager’s Prompt Book**

Bailey White

Research Advisor: Mr. Don Hooper

Department of Theatre and Dance
Centenary College of Louisiana

A prompt book, as called a “show bible,” is a master script of a production made by the stage manager. It typically includes a blocking script with the movements of every actor, a calling script with all of the technical cues, prop lists, rehearsal schedules, contact sheets, and all other paperwork regarding the production. Each stage manager organizes his/her prompt book in a different way, and this was my first attempt at a prompt book. I stage managed the first show of the current season, which was *Not About Nightingales* by Tennessee Williams.

References to Salvador Dali Make Me Hot
by Jose Rivera

Abigail Dillard

Research Advisor: Mr. Logan Sledge

Department of Theatre and Dance
Centenary College of Louisiana

Through a Director's Prompt Book I explore passion, dreams, and love in an expressionistic way. Take a breath, suspend disbelief and view a snapshot of a woman home alone with a husband far away fighting in the gulf war. In the vacant landscape of the California desert she finds solace in her house cat, the moon and a healthy fear of encroaching cacti and coyotes.

I built a visual image with extensive table work research to supplement rehearsals. My visual image, a fire and melting Salvador Dali creates a literal reference. From this, we as an ensemble grew from that to create a surrealist image of our own. Throughout our scene our energy is expended in movement to tell the story. From our entrance to Moon's storytelling we use movement to express the sentiments of the art portrayed through the play. Our couple of the Cat and the Coyote play the lost lovers told to Gabriela by the Moon. They present our stories through expressionist movement and representational reenactments. Gabriela and the Moon close our scene with their flirtation ending in a passionate kiss leaving us with a want for more.

SOCIAL SCIENCE
ORAL PRESENTATIONS

Determinants of Middle School Performance
in Northern Louisiana

Wesle Coffman

Research Advisor: Dr. Harold Christensen

Department of Economics
Centenary College of Louisiana

This presentation seeks to find the factors that determine the success of middle schools in northern Louisiana with the goal of using economic analysis to find methods to improve

schools across the state. The dependent variable is the School Performance Score - a metric given by the state based on the test scores of students at each school. This presentation uses data from thirty-eight middle schools in Louisiana from the years 2008 through 2011, and observes several factors which influence school performance across this time. These factors are: faculty experience, funding per student, the percentage of students on free or reduced lunch, the percentage of teachers with Master's degrees, and the student to faculty ratios. The findings from this model using OLS analysis suggest that the most important factors that influence school performance are the percentage of students on free or reduced lunch and the percentage of teachers with Master's degrees. These results suggest that the most important factors that influence school performance are the family income level of students in each school as well as the qualifications of the teachers. This research suggests that the most effective way to improve schools in the state of Louisiana is to raise the standards for teachers across the state; the negative effects from larger class sizes from having fewer teachers will be less impactful than the positive effects of more highly qualified teachers.

Examining the Healthcare Ideologies of Insurance Providers and Physicians

Sarah Irons

Research Advisor: Dr. Wolkomir

Department of Sociology
Centenary College of Louisiana

This study examines the ideologies of two powerful key groups at the epicenter of the healthcare industry—physicians and insurance providers. Because ideologies structure how we conceptualize problems and potential courses of action and remedy, this study investigates how these two key players in the debate think about healthcare and the relationships between social class, access to healthcare, quality of care and cost. These groups represent two different vantage points in the field—provision of care versus cost of care—from which to view the current system, yet are both powerful and well-funded and as are likely to have a voice in the ongoing debate about healthcare reform. To explore how these groups view healthcare, interviews were conducted with physicians and insurance providers. We found that the healthcare ideologies of these individuals exist

on a continuum, with healthcare as a human right on one end of the spectrum and healthcare as a commodity on the other end. While no individual interviewed fell directly on either end of our continuum, their ideological positions are heavily influenced by the daily practices and interactions of the professional.

Perception of Aggression in Racial Voicing

Gabrielle Glorioso

Research Advisor: Dr. Amy Hammond

Department of Psychology
Centenary College of Louisiana

Previous research exploring biases toward black males has found that black men are perceived as more aggressive and violent than white men (Duncan, 1976; Sagar & Schofield, 1980). These studies have generally used visual stimuli, however the current study examined this phenomenon via vocal stimuli. Participants heard both warm and aggressive sentences, spoken by a black and a white speaker, in African-American English and Gulf-Southern dialects.

Across analyses, results support prior findings in the auditory domain; black speakers and African-American English are perceived as more aggressive, less warm, and more authoritative than white speakers and Gulf-Southern dialect.

NATURAL SCIENCE ORAL PRESENTATIONS

Shining Light on the Role of Conserved CCT-domain Proteins in Flowering in *Sorghum bicolor*

Manon Doucet

Research Advisors: Drs. Daryl T. Morishige², John E. Mullet²,
Rebecca L. Murphy¹

¹Department of Biology
Centenary College of Louisiana

²Department of Biochemistry and Biophysics,
Texas A&M University, College Station, TX

One of the major goals of plant science today is to translate the information gleaned from model systems into crop systems

in an applied way. The expression of CCT domain proteins, like CONSTANS and PRR37, is one of the major determinants of flowering time, and flowering time in turn is an important characteristic that can be modulated to optimize grain, sugar, or biomass production in *Sorghum bicolor* and other crop plants. Therefore, understanding the most basic molecular switch that controls reproductive transition is an important part of optimizing crop production. The mechanism by which these proteins contribute to reproductive growth is not well understood, though it has been demonstrated in *Arabidopsis* that proteins in this family may interact to form a complex that regulates transcription for important flowering genes. To gain initial understanding of how these proteins may operate in crop plants, analysis of protein-protein interactions between important CCT domain proteins was performed for proteins in *Sorghum bicolor* using an in vitro translation system to express select tagged CCT-proteins for protein interaction assays

Synthesis and Photolysis of Cyclopropyl-Substituted Benzophenones Using Transition Metal Catalysts

Dolores Ross

Research Advisors: Drs. Natarajan Raju and Rolf Swenson

Imaging Probe Development Center; National Heart, Lung, and Blood Institute; National Institutes of Health, Bethesda, MD

The angle strain of cyclopropyl groups causes them to be highly reactive. Multiple routes were taken to synthesize cyclopropyl-substituted benzophenones which were to be used in photolysis. The literature shows that when a cyclopropyl-substituted benzophenone undergoes a photolytic reaction, the three-membered ring will open giving a lower energy triplet that will undergo isomerization¹. Photolysis of a cyclopropyl-substituted benzophenone was performed in the presence of transition metal catalysts to determine the effects the catalysts would have on product distribution during isomerization.

HUMANITIES ORAL PRESENTATIONS

“You should be ashamed of yourself Judge”: Sovereign Citizen and Montana’s “Natural Man” and his Idealization of and Validation for the Truth about Law

Jamie Wright

Research Advisor: Dr. Spencer Dew

Department of Religious Studies
Centenary College of Louisiana

Self-proclaimed “Natural Man” Ernie Wayne Tertelgte appears in Montana courts to challenge the authority and legitimacy of those courts, judges, and lawyers within them. His colorful performances of vernacular legal knowledge are videotaped and posted online by his supporters.

In these videos, Tertelgte—grizzly, costumed like a pioneer—routinely claims “victory,” often by storming out of the courthouse.

As part of a broader study of sovereign citizen legal theory and practice conducted over the past ten months, this presentation argues that sovereign legal performances are deemed to be “successful” not on the basis of legal judgments or results but, rather, along subjective lines related to three ways that these performances function for the sovereign legal actor. First, legal performances enact the very sovereign ontological status claimed by such actors. Second, these performances are also understood to “unveil” the illegitimacy and corruption of the American judicial system. Third, such performances (analyzed, discussed, and formally studied via their online location) act as proselytizing and pedagogical devices for the sovereign citizen movement.

The New Frontier: Revising the West

Reily Cook

Research Advisor: Dr. Jeanne Hamming

Department of English
Centenary College of Louisiana

This presentation is a revisionist look at America's westward expansion and the cultural forces that motivated that expansion. Given our modern ecological problems (for example, being required to drill deep down into the earth to provide enough water for Santa Fe, New Mexico), this presentation attempts to re-see the historical and literary texts of American history in order to make sense of our current dilemma. Rather than seeing westward settlement as the restoration of the "Garden," an Eden-like landscape of pastoral beauty and ecological symbiosis, this presentation charts a narrative of westward capitalist expansion that ultimately results in ecological destruction. Using literature from Ralph Waldo Emerson and Frederick Jackson Turner, as well as modern author Cormac McCarthy to chart this narrative, the presentation considers three aspects of the American cultural mind: American nature, the frontier, and industrial capitalism.

Junkies Next Door: Eros and Thanatos Complex, Control, and Intervention

Tyler Sanders

Research Advisor: Dr. Jeanne Hamming

Department of English
Centenary College of Louisiana

The monstrous body defies boundaries and the owners of capital use the 'freak' to maintain difference between it and society. The freak-ish bodies are consumed and then assimilated into popular culture and reinforce American hegemony because they are that which everyone is not. The cycle of consuming freak-ish bodies has been stable since the introduction of sideshows accompanying vaudevillian circuses during the Industrial Revolution. The technological advances that have kept accelerating did not change the cycle; only the process, which incorporates the freak into wildly successful reality television shows such as: *Intervention*, *My Extreme Makeover*, *The Swan*, *Botched*, and *My Strange Addiction*. Each show examines a nuance of the abject: unattractive women, extreme alterations of

body morphology, and the peculiar taste for Comet. The focus here is to look at the abject on Intervention, a show that displays the diseased body of the addict. Intervention creates a pleasure in looking at the addict because of the distance between self and the abject, the ability to define oneself against the abject, and the emotional satisfaction viewers get from watching the competition between the perversion of Eros and Thanatos complex.

Baby Got Back: The Kardashians Commodification of Black Beauty

Grace Rambo

Research Advisor: Dr. Jeanne Hamming

Department of English
Centenary College of Louisiana

Due to the importance of intersectionality in third-wave feminism, the idea of beauty has become a more inclusive space where women of color can celebrate their natural looks. Yet, black beauty, along with other types, continues to exist as an alternative or "other," to the standard that is white. The Kardashians (among other celebrities), have begun to change this standard definition by appropriating physical characteristics that were historically seen as taboo; yet, by appropriating these attributes they have also commodified it, and in doing so have caused an erasure of the black female body.

#WhyUntoOthers?

Abigail Dillard

Research Advisor: Mr. Logan Sledge

Department of Theatre and Dance
Centenary College of Louisiana

In a two part conversation, I will cover my recipe for a devised theatre piece on our progress thus far on this year's theatre production #WhyUntoOthers? My recipe calls for a lot of collaboration and creativity. With a budget of nothing, I will explain how to create theatre with nothing but a question and some determination. From script writing to movement workshops you really can address any subject a group collectively wants to present.

The second portion will explain the theatre departments current project #WhyUntoOthers? I will briefly cover how the recipe described in detail above creates a lasting image and story to share with an audience. Going through the prompt to the hashed out script to possibly even visual images showcasing the progress thus far.

Irene Ryan Acting Scholarship Scenes

Christian Roberson and Sarah Leal

Research Advisor: Mr. Logan Sledge

Department of Theatre and Dance
Centenary College of Louisiana

Every year the Kennedy Center hosts the Kennedy Center American College Theater Festival for regions across the nation. One of the programs happening during the festival is the Irene Ryan Acting Scholarship Auditions. A “competition” in which actors nominated from several theater programs are to bring two scenes and a monologue. This year over 130 duets participated for region 6, 32 of those duets made it to the semi-finals, and 16 made it to the finals. Saral Leal, my partner, and I made it to the finals this year and learned a tremendous amount about theatrical performance from the experience. For this research forum presentation, we would perform our scenes and talk about the Irene Ryan process.

Scriabin's Fourth Symphony: Analyzing Color in Scriabin's Fourth Symphony

David Westbrook

Research Advisor: Dr. Todd Gabriel

Department of Music
Centenary College of Louisiana

Alexander Scriabin (1871-1915) grew in fame not only for his renowned piano skills, but also for his apparent case of synesthesia, a medical phenomenon where one sense simultaneously triggers another. For example, in Scriabin's case, he would hear a G played and see the color orange. In Scriabin's famous *Prometheus: The Poem of Fire*, Scriabin employs for the first time in music a “color organ” that bathes the concert hall in various colors of light. Analyzing the colors present in Scriabin's

Prometheus, and using the color wheel Scriabin provided, I interpret the harmonic changes in his fourth symphony, *Poem of Ecstasy* to figure out the various colors. The analysis focuses primarily Scriabin's use of double bass and trumpet fanfare to signal various color changes, along with to propel the movement forward in both power and color.

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